

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 22 MAR 2005

WIPO

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| Applicant's or agent's file reference MICROTECH | FOR FURTHER ACTION | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416). |
| International Application No. PCT/AU2003/001523 | International Filing Date (day/month/year) 17 November 2003 | Priority Date (day/month/year) 18 November 2002 |
| International Patent Classification (IPC) or national classification and IPC Int. Cl.⁷ H02N 2/18, H02K 35/04 | | |
| Applicant MICROTECHNOLOGY CENTRE MANAGEMENT LIMITED et al | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheet(s).

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

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| Date of submission of the demand 8 April 2004 | Date of completion of the report 11 March 2005 |
| Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929 | Authorized Officer PETER T. WEST Telephone No. (02) 6283 2108 |

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

See Supplemental Sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

| | | |
|-------------------------------|----------------------------|-----|
| Novelty (N) | Claims 4, 6, and 7. | YES |
| | Claims 1, 2, 3, 5 and 8 | NO |
| Inventive step (IS) | Claims 4 and 7 | YES |
| | Claims 1, 2, 3, 5, 6 and 8 | NO |
| Industrial applicability (IA) | Claims 1 to 8 | YES |
| | Claims | NO |

2. Citations and explanations (Rule 70.7)

The following documents identified in the International Search Report have been considered for the purposes of this report:

D1 US 3480808 A (RIETH) 25 November 1969
D2 FR 2478996 A (GUERIN) 2 October 1981
D3 GB 2264208 A (HOBELSBERGER) 18 August 1993

Novelty (N)

D1 discloses the features of claims 1, 5 and 8.
D2 discloses the features of claims 1, 5 and 8.
D3 discloses the features of claims 1, 2, 3, 5 and 8.

Therefore the subject matter of claims 1, 2, 3, 5 and 8 is not new and does not meet the requirements of Article 33(2) PCT with regard to novelty.

Inventive Step (IS)

Claims 1, 2, 3, 5 and 8 also lack an inventive step for the reasons given above.

Claim 6 lacks an inventive step in the light of any of D1 to D3. A rectification circuit is essential to convert the alternating current produced by coil and magnet generators to direct current and both DC to DC converters and voltage detectors are commonly used in power generators. It is therefore considered that it would be obvious to a person skilled in the art to utilise these circuits with the claimed device.

Therefore the subject matter of claims 1, 2, 3, 5, 6 and 8 is obvious and does not meet the requirements of Article 33(3) PCT with regard to inventive step.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. There is no antecedent to "membranes" in claim 3 when it is appended to claim 1.
2. There is no antecedent to "the membrane" in claim 4 when it is appended to claim 1.
3. In claim 7 there is no antecedent to "the voltage produced by the relative movement between the coil and the magnet". This may have been intended to be "the current produced by the relative movement between the coil and the magnet".

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of Box IV. (Lack of unity of invention)

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion this Authority has found that there are different inventions as follows:

1. Claim 4 is directed to an electrical generator having an elongated support which is fixed at one end but free to move, a coil mounted on the moving end and a magnetic field adjacent the coil such that movement of the coil induces an electric current, the support being a piezo membrane which is L shaped and which is fixed at the top of the L and having the coil mounted at the foot of the L so that movement of the coil stresses the membrane so that the membrane produces a voltage.

It is considered that the support being a piezo membrane which is L shaped comprises a first "special technical feature".

2. Claim 6 is directed to a rectification device for a parasitic energy harvester in which relative movement between a coil and a magnet induces an electric current in the coil and having a piezo membrane incorporated into the support for the coil or magnet so that movement also produces a voltage in the membrane and that this voltage is sufficient membrane to power the rectification of the "voltage" produced by the coil.

It is considered that using the voltage produced by the piezo membrane to power the rectification of the "voltage" produced by the coil comprises a second special technical feature.

These groups are not so linked as to form a single general inventive concept, that is, they do not have any common inventive features, which define a contribution over the prior art. The common concept linking together these groups of claims is a piezo membrane incorporated into the support for the coil so that movement of the coil also stresses the membrane so that the membrane produces voltage. However this concept is not novel in the light of GB 2264208 (HOBELSBERGER). Therefore these claims lack unity a posteriori.